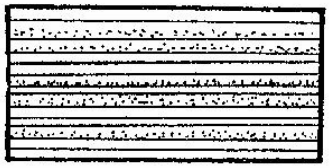
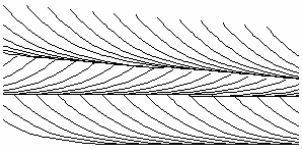
Sedimentary Structures

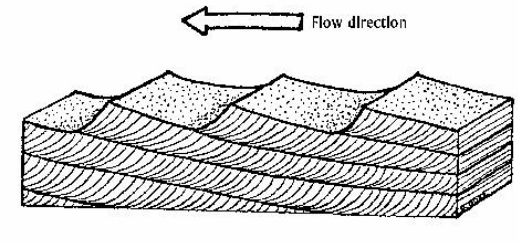
Clastic (Mechanical) Deposition

Layers (bedding, stratification) – sed. tends to be layed down in flat layers (planar bedding)

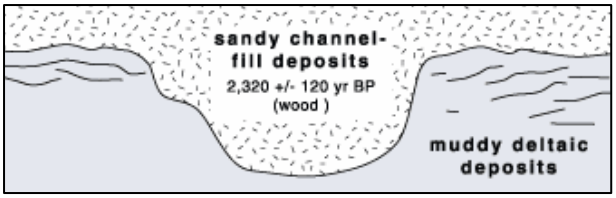


Crossbedding – dunes or beaches, beds NOT layed down in flat layers





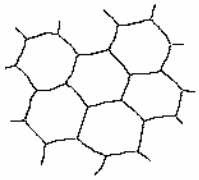
Channel fills (cut & fill) – stream channels cut and fill as river meanders in flood plane.



Ripple marks – ripples caused by currents in shallow water

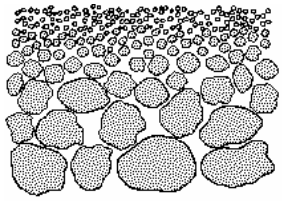
Ripple marks

Mudcracks – contraction of mud (silt & clay) in dry lake or mud flats



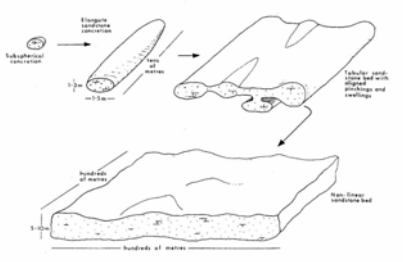
Mud cracks

Graded Bedding – ordered settling of poorly sorted sed. from a turbidity flow (water saturated avalanche of sed)



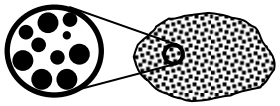
Graded Bedding

Chemical Deposition



Concretions – preferred precipitation around a fossil or mineral grain

Oolites — are small (1/4 - 2mm), concentrically layered, spherical grains composed of primary carbonate materials. Form where gentle wave action in warm waters allow carbonate precipitation on all sides of a grain of sand or shell fragment.



Evaporites — drying lake (playas), sea, embayments. PPT products change as water becomes more saturated with salts.

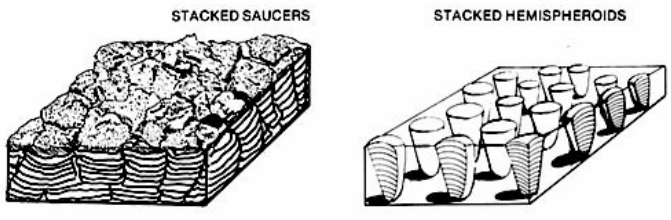
K & Mg salts
Salt
Sulfates (gypsum)
Carbonate

Biogenic

Limestone –

a) precipitation in carbonate rich shallow marine environment (perhaps aided by organisms) Removes CO_2 from the atmosphere (carbon sink).
b) Accumulation of $CaCO_3$ shells
    a. plankton – **chalk**
    b. Mussels, clams, oysters, and corals, etc. – **coquina**

Stromatolites are finely laminated algal accumulations (>10cm in diameter) that result when Cyanobacteria or blue-green algae grow upwards trapping carbonate mud into thin layers.



Reefs – massive to bedded forms built during carbonate deposition by coral polyps that precipitate calcium carbonate.